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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/872,125	05/31/2001	Steve West	5043P013	5575

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EXAMINER

MEHRA, INDER P

ART UNIT	PAPER NUMBER
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2666

DATE MAILED: 03/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/872,125

Applicant(s)

WEST ET AL.

Examiner

Inder P Mehra

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-20 is/are rejected.
- 7) ☒ Claim(s) 22-35 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Response to Amendment

1. This is in response to amendment 'B' dated 12/27/02.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 6-9, 11, 15, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kline et al** (US Patent No. 5,812,527), hereinafter Kline.

Regarding claims 1-4, 11, 19 and 20, Kline discloses switch mesh fabric 154 in figs 5, 6, 7 and 8, ATM data is transmitted across the switch, refer to col. 10 lines 17 and 25. Kline discloses, in reference to figs.4, 5, 6, 7 and 8, **mesh** switch fabric 154, refer to col. 10 line 25; ingress physical ports 160 sub 1-4, fig. 5, (ingress interface); egress physical ports 162 sub 1-4, fig. 5, (egress interface); **schedulers 208 and 280 (scheduler)**, the ingress interfaces 140, fig. 6, to receive data from external sources, source end systems (SES 102 fig. 4) and to transmit ATM cells across mesh switch fabric 154 to the egress interface 146, fig. 6, egress interface 162 to receive data from the asynchronous mesh 154 and to transmit to external destination 160. Switch shown in fig. 5 is bi-directional.

Further Kline discloses, as recited in claims 11 and 19, plurality of ingress cards 141 and 145 and plurality of egress cards 142 and 146, refer to fig. 6, and col. 12 lines 33-36; each of the ingress card comprises scheduler208 for ingress and 280 for egress port, refer to, refer to figs. 5

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and 6 under the control of scheduler 208 across the switch to corresponding egress port (buffer 250), refer to col. 17 lines 18-25;

Kline discloses equal number of ingress and egress ports ($N=M$), as recited in claim 20, refer to fig. 5;

Kline does not disclose expressly if switch fabric is asynchronous mesh. However, fabric includes buffer 206 wherein the ingress data is stored for eventual scheduled transmission of ATM data under the control of scheduler 208 across the switch to corresponding egress port (buffer 250), refer to col. 17 lines 18-25. There is a transmission of ATM data which is asynchronous transfer mode, refer to col. 1 lines 15-22 and col. 25 lines 58-67. Further, ingress port is connected with egress port and there is no clock involved. These details support the definition of asynchronous switch fabric, refer to col. 10 line 25. Further, Kline discloses that switch fabric can be mesh switch fabric, which means that each ingress port is connected with each egress port, refer to figs. 5 and 6 under the control of scheduler 208 across the switch to corresponding egress port (buffer 250), refer to col. 17 lines 18-25.

Regarding claims 6 and 7, Kline discloses congestion control functions with the aid of ingress/egress processors 140, 142, 144 and 146 (egress interfaces generate a flow control signal--egress interfaces), refer to col. 9 lines 5-15.

Regarding claim 8 Kline discloses, in reference to figs. 5 and 6, ingress interfaces 160 sub 1-4, egress buffer (shared) 250 in fig. 6, egress interfaces 162 sub 1-4 in fig. 5, egress

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interface scheduler 280 which retrieves data from egress buffer 250 for transmission to external destinations, refer to col. 12 lines 5 through col. 13 lines 10-13.

Regarding claims 9 and 15, Kline discloses “explicit rate (ER)’ congestion flag is set at the egress interfaces **(the egress interfaces generate a flow control signal to prevent access by one or more queues at the ingress interfaces to the egress buffer, as recited in claim 9; refuse data transmitted from the associated ingress card, as recited in claim 15)**, refer to col. 16 lines 55-67.

4. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Kline et al** (US Patent No. 5,812,527), hereinafter Kline and further in view of **Ku et al** (US Pub. No. 2002/3385567), hereinafter, Ku.

Regarding claim 10, Kline discloses transmission of ATM (fixed-length) cells across switch fabric 154, refer to fig. 1; and virtual connection (VC) queues 290, fig. 8 for transfer data, fig. 8;

Kline does not disclose expressly “variable length” packet transmission across the switch;

Ku further discloses external equipment 112 (ingress interface) operating in accordance with any of communication protocols, such as, ATM (fixed length) and frame relay (variable length packets utilized with in the domain 100 (network/mesh) to destination 122 (egress interface), refer to page 3 paragraph 0042 and claims 1 and 2

A person of ordinary skill in the art would have been motivated to employ Ku’s switch into Kline’s switch in order to control congestion with in the network. The suggestion/motivation

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to do so would have been to prevent congestion and loss of packets. It would have been obvious to a person of ordinary skill in the art to include both fixed-length and variable-length packet transmission in the same network.

5. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kline et al** (US Patent No. 5,812,527), hereinafter Kline in view of **Huscroft et al** (US Patent No. 5,889,778), hereinafter Huscroft.

Regarding claim 12-14, Kline discloses **the ingress buffer receives telecommunication data**, as recited in claim 13, refer to fig. 5;

Kline does not disclose expressly the following limitations:

- “FIFO” queues;
- ingress scheduler transfer data from the ingress buffer according to priorities associated with the data

Huscroft discloses FIFO buffer 52 in fig. 5 receiving data from incoming cells, refer to col. 4 lines 37-46;

A person of ordinary skill in the art would have been motivated to employ Kline’s switch into Hiscock’ interconnected trunk cluster arrangement in order to prepend and postpend routing information . The suggestion/motivation to do so would have been to identify the cells. It would have been obvious to a person of ordinary skill in the art to use FIFO buffer in order to regulate the flow of transmission of data across the mesh.

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6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Kline et al** (US Patent No. 5,812,527), hereinafter Kline in view of **Hunt et al** (US Patent No. 6,201,809), hereinafter Hunt.

Regarding claim 16, Kline discloses congestion control,

Kline does not disclose expressly **retransmission of data until the associated egress port and buffer accept the previously refused data;**

Hunt discloses overrun of destination host by the source host, refer to col. 6 lines 30-33; further, discloses retransmission of data by the source host, refer to col. 8 lines 59-60; and also determines that the segment being transmitted was already delivered to the destination host, and, therefore, need not send duplicate data, refer to col. 8 lines 60-65;

A person of ordinary skill in the art would have been motivated to employ Hunt's lower layer flow control system into Kline's system in order to retransmit packet information and restore the flow control. The suggestion/motivation to do so would have been to identify the packets which might have been lost due to congestion or overflow at the egress port. It would have been obvious to a person of ordinary skill in the art to retransmit the lost packet until the associated port accept the previously refused packet, and also to maintain the flow of transmission of data across the mesh.

7. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kline et al** (US Patent No. 5,812,527), hereinafter Kline; **Kadambi et al** (US Patent No. 6,154,446), hereinafter Kadambi.

Regarding claims 17 and 18, Kline discloses the following limitations:

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- egress look up memory 282 (**egress data store**, recited by claim 17) for each of the pots of egress card, refer to col. 12 lines 9-10;
- guarantee QOS for the various categories supported (i.e CBR, VBR, ABR and UBR), (**supports associated classes**), refer to col. 12 lines 18-21;

Kline does not disclose expressly **storage of packet data in each of the ports according to an associated class**, as recited in claim 18;

Kadambi discloses storage per class of service, refer to col. 13 lines 56-58;

A person of ordinary skill in the art would have been motivated to employ Kadambi's network switching architecture Kline's switch in order to store data in egress storage buffers. The suggestion/motivation to do so would have been to integrate packets according to class of service. It would have been obvious to a person of ordinary skill in the art to integrate data and facilitate identification of data associated with its destination.

Allowable Subject Matter

8. Claims 22-35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Argument

9. Applicant's arguments with respect to claims 1-4, 6-20, 22-35 have been considered but are moot in view of the new ground(s) of rejection.

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Conclusion

10. Any enquiry concerning this communication should be directed to Inder Mehra whose telephone number is (703) 305-1985. The examiner can be normally reached on Monday through Friday from 8:30AM to 5:00 PM. If attempt to reach the examiner by telephone is unsuccessful, the examiner's supervisor, Seema Rao, can be reached on (703) 308-5463. Any enquiry of a general nature of relating to the status of this application or processing should be directed to the group receptionist whose telephone number is (703) 305-4700.

10. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, DC. 20231

Or faxed to (703) 872-9314.

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal drive,
Arlington, VA, sixth floor (Receptionist).

Inder Mehra
Inder Mehra 3/6/03

March 6, 03

DTM
DANG TON
PRIMARY EXAMINER